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United States Patent [19]

Kawamura et al.

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[54] **ORGANIC ELECTROLUMINESCENCE DEVICE, ORGANIC THIN FILM, AND TRIAMINE COMPOUND**

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[52] **U.S. Cl.** **428/220**; 564/307; 564/429; 564/433; 564/434; 313/503; 313/504; 313/506; 313/509

[58] **Field of Search** ..... 40/544; 564/307, 564/429, 433, 434; 428/220, DIG. 917; 313/503, 504, 506, 509

[56] **References Cited**

FOREIGN PATENT DOCUMENTS

562883 A2	9/1993	European Pat. Off. .
0 779 765	6/1997	European Pat. Off. .
03064760 A2	3/1993	Japan .
05224440 A2	9/1993	Japan .
08031574 A2	2/1996	Japan .
08109373 A2	4/1996	Japan .
08185982 A2	7/1996	Japan .
08199163 A2	8/1996	Japan .

OTHER PUBLICATIONS

Yasuhiko Shirota, et al., Applied Physics Letters, vol. 65, No. 7, pp. 807–809, "Multilayered Organic Electroluminescent Device Using a Novel Starburst Molecule, 4,4',4"–Tris (3–Methylphenylphenylamino) Triphenylamine, as a Hole Transport Material", 1994.

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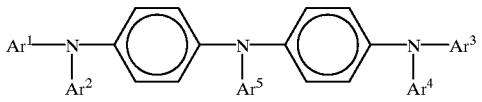
[57] **ABSTRACT**

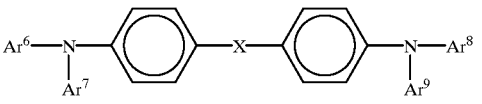
The present invention provides a triamine compound represented by general formula (I):

(I)



an organic luminescence device which comprises an organic layer and a pair of electrodes disposed on both sides of the organic layer wherein the organic layer at least contains a layer of a light emitting zone and a layer of a hole transporting zone which comprises a hole injecting layer containing the triamine compound and a hole transporting layer, and an organic thin film comprising two layers which are a layer containing a compound represented by general formula (I) and having a thickness of 5 nm to 5 μm and a layer containing a compound represented by general formula (II):

(II)



10 Claims, 2 Drawing Sheets